

JAPAN

EDICT OF GOVERNMENT

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JIS B 6542 (1991) (English): Veneer lathes --
Test and inspection methods

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*The citizens of a nation must
honor the laws of the land.*

Fukuzawa Yukichi

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JAPANESE INDUSTRIAL STANDARD

**Veneer lathes — Test and
inspection methods**

JIS B 6542^{—1991}

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

1. Scope

This Japanese Industrial Standard specifies the structure, nominal sizes and methods for functional tests, running tests, accuracy inspections and machining accuracy inspections of the veneer lathes 350 mm or over to 4500 mm or under in length of tool fitting surface and 400 mm or over to 2200 mm or under in swing⁽¹⁾.

Note ⁽¹⁾ The maximum diameter of workpieces capable of being machined.

Remarks 1. The applicable standard to this Standard is as given in the following:

JIS B 6521-Methods of measurement for noise emitted by wood working machinery

2. In this Standard, the units given in { } are in accordance with conventional units, and are appended for informative reference.

2. Structure

Every part of the veneer lathe shall have sufficient rigidity and not adversely affect its machining accuracy.

3. Nominal sizes

Nominal sizes of veneer lathes shall be expressed in terms of the length of tool fitting surface (mm) and swing (mm), and shall be in accordance with Tables 1 and 2.

Table 1. Lengths of tool fitting surfaces Unit: mm

Length of tool fitting surface	Tolerances
350	± 20
500	
600	
1 050	
1 200	
1 250	
1 350	
1 500	
1 850	
2 100	
2 300	
2 400	
2 700	
2 750	
2 950	
3 050	
3 350	
4 200	
4 300	
4 450	
4 500	

Table 2. Swings Unit: mm

Swing	Tolerances
400	± 20
600	
700	
800	
900	
1 000	
1 200	
1 350	
1 650	
1 800	
2 000	
2 200	

Remarks: Veneer lathes shall be designated by name and size (length of tool fitting surface x swing).

Example: Veneer lathe 1500 x 800

4. Functional test methods

Functional tests of veneer lathe shall be carried out in accordance with Table 3.

Table 3. Functional test

No.	Test item	Test method
1	Electrical equipment	Test the insulation condition once each, before and after running tests.
2	Starting, stopping and running operations of rotations of the left and right spindles	Start and stop the spindle several times at an appropriate speed to test smoothness and reliability of operation.
3	Changing operations of speeds of the left and right spindles	Change the speed of the spindles, to test the smoothness of operation and reliability of indication of the control device.

Table 3. (Continued)

No.	Test item	Test method
4	Starting, stopping and running operations of drawing-out and-in motions of the left and right spindles	Draw-out and draw-in the spindle repeatedly to test the smoothness and reliability of starting and stopping.
5	Starting, stopping and running operations of automatic and rapid feeding of the knife holder	Conduct starting, stopping and rapid feeding (forward and backward) at an appropriate speed several times to test smoothness and reliability of operation.
6	Changing operation of feeds of the knife holder	Change feeds to test smoothness of operation and reliability of indication.
7	Cutting angle adjusting device	Test smoothness of function and accuracy of indication.
8	Tool gap adjusting device	Test smoothness of function and accuracy of indication.
9	Marking device	Test smoothness and reliability of function.
10	Fitting and detaching of knife and nose bar	Test reliability and smoothness of fitting and detaching of knife and nose bar.
11	Mounting and dismounting of workpieces	Test reliability and smoothness of mounting and dismounting of workpieces.
12	Safety device	Test reliability of safety function for worker and protective function for machine.
13	Lubricating system	Test reliability of functions such as oil tightness, adequate distribution of oil, etc.
14	Oil hydraulic system	Test reliability of functions such as oil-tightness, pressure adjustment, etc.
15	Pneumatic system	Test reliability of functions such as airtightness, pressure adjustment, etc.
16	Attached equipment	Test reliability of function.

Remarks: For veneer lathes without relevant functions, test items corresponding to these in Table 3 shall be omitted.

5. Running Test methods

5.1 No load running test Allow the spindle to rotate and continue running for 30 to 60 min, measure required electric power and noises after bearing temperatures have been stabilized, record each item specified in Record form 1 of Table 4 and, at the same time observe abnormal vibrations by the sense of touch.

Further, the measurement of noise shall be made in accordance with JIS B 6521.

Table 4. Record form 1

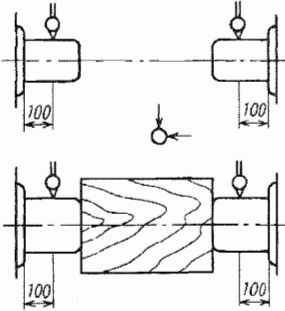
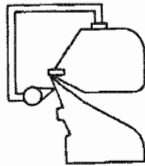
No.	Time of measurement, hour and minute	Rotational speed of spindle r/min (rpm)		Temperatures °C								Required electric power			Noise in A characteristic dB	Remarks
		Marked	Measurement actually measured	Bearing of left spindle		Bearing of right spindle		Gear box		Room temperature	Voltage V	Electric current A	Input kW			
				Left	Right	Left	Right	Left	Right							

Remarks: Record the measuring conditions of noise in remarks column.

5.2 Load running test After the tests on respective items specified in Table 5 have been carried out, carry out the cutting of a workpiece, measure required electric power and noises, record each item specified in Record form 2 of Table 6, and, at the same time, observe abnormal vibrations and conditions of cut surface by the sense of touch.

Table 5. Load running tests

Unit: mm

No.	Inspection item			Measuring method	Illustration of measuring method	Permissible deviation
1	Displacements of left and right	In horizontal plane	Left	Apply a fixed indicator (e.g. on the floor) to the spindle at the position of 100 mm from the sleeve end face, and consider the difference of readings, when a material wood has not been mounted and has been mounted, to be the measured value ⁽²⁾ .		-
			Right			-
		In vertical plane	Left			-
			Right			-
2	Variation of a horizontal tool gap			Apply a test indicator being mounted on the press pressure bar or both ends of the knife holder to the knife holder or pressure bar, and consider the maximum value of the differences between at the time of no load and at the time of under load to be the measured value.		0.02 in the case where the peel thickness is 1 or less, 0.05 in the case of the peel thickness being over 1 up to 5 including.

Notes ⁽²⁾ To mount the material wood, exert an ordinarily used compressive pressure to it in the direction of the main spindle and record the diameter and length of material wood, diameter of spindles, outside diameter of chucks, etc.

⁽³⁾ At the time of under load means the cutting condition after cutting has been conducted continuously for several rotations.

Remarks 1. In the case of cutting, select workpieces (roughly pared wood suitable for plywood), tools and mechanical conditions according to the function of lathes.

2. Cutting conditions is illustrated in the following Fig. 1:

Fig. 1

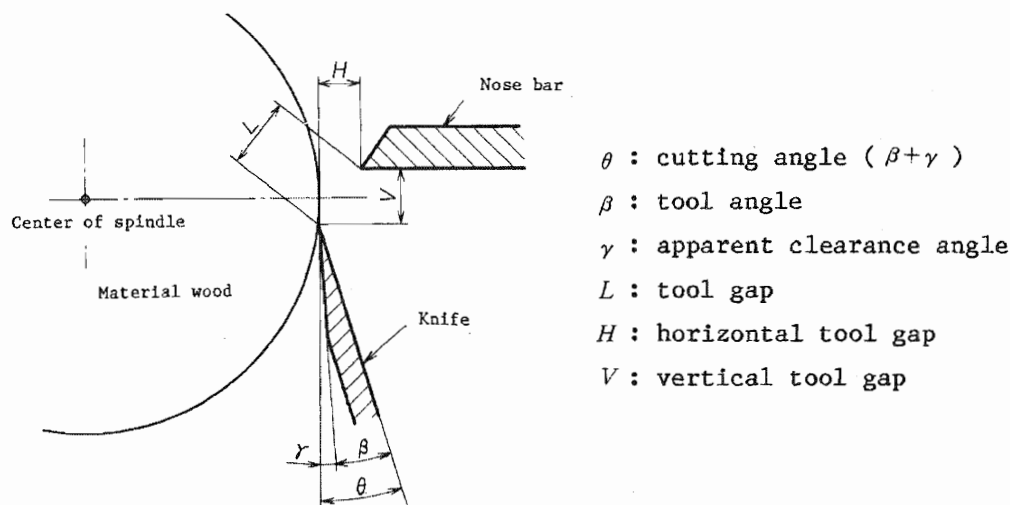


Table 6 Record form 2

No.	Workpieces						Tool				Cutting conditions						Required power		Noise, A characteristic dB	Remarks		
	Kind of wood	Pretreatment conditions		Dimen- sions		Dimensions			Knife edge material	Tool angle β°	Shape of nose bar tip	Speed of rotation of spindle r/min {rpm}	Amount of step feed mm	Distance between knife and nose bar mm			Cutting angle θ°	Position of knife edge (°)			Position of knife edge (mm)	
		Method	Temperature °C	Hour	Min. length mm	Diameter mm	Length mm	Width mm						Thickness mm	L	H						V

Note ⁽⁴⁾ (+) in the case where the position of knife edge is higher than the center of spindle, (-) in the case lower.

Remarks 1. Record measuring conditions of noise in the remarks column.

2. It is preferable to measure temperature of workpieces and water content of veneer just after cutting and to record them in the remarks column.

6. Accuracy inspection methods

Accuracy inspections of veneer lathes shall be carried out in accordance with Table 7.

Table 7. Accuracy inspections

Unit: mm

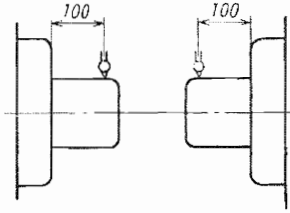
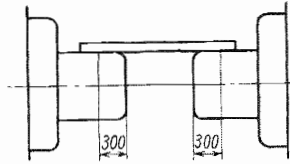
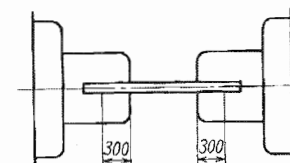
No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
1	Runouts of left and right spindles	Left spindle	Apply a test indicator to the outside peripheral surface of the spindle at the position 100 mm from the end face of the sleeve, rotate the spindle by hand, and consider the maximum difference of the readings of the test indicator during rotation to be the measured value.		0.08
		Right spindle			0.08
2	Degree of deviation of center lines of left and right spindles	In horizontal plane	Draw out the left and right spindles to the maximum limit, apply a straightedge to both spindles, carry out measurement over the range of 300 mm from each end of the left and right spindles with a feeler gauge, and consider the maximum difference to be the measured value.		0.15
		In vertical plane			0.15

Table 7. (Continued)

Unit: mm

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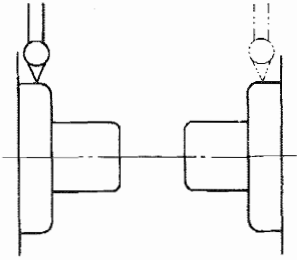
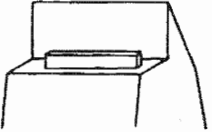
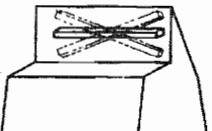
No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
3	Runouts of left and right sleeves	Left	Apply a test indicator to the outside peripheral surface of each sleeve, rotate the spindle by hand and consider the maximum difference of readings of the test indicator during rotation to be the measured value.		0.06
		Right			0.06
4	Straightnesses of knife fitting surfaces of knife holder	Hori- zontal surface (⁵)	Apply a straightedge to the knife fitting surface in longitudinal direction, measure clearances with a feeler gauge, and consider the maximum value thereof to be the measured value(⁶).		0.03 per 1000
		Vertical surface	Apply the straightedge to the knife fitting surface in longitudinal direction and onto diagonal lines, measure clearances with the feeler gauge, and consider the maximum value thereof to be the measured value(⁶).		0.03 per 1000

Table 7. (Continued)

Unit: mm

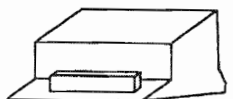

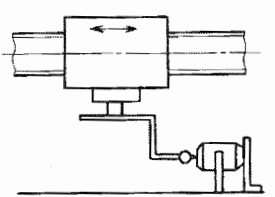
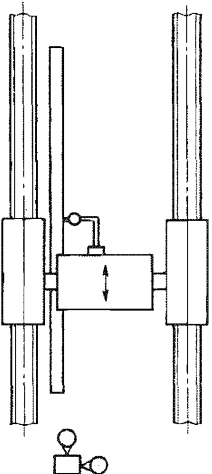
No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
5	Straightnesses of nose bar fitting surfaces	Horizontal surface	Apply a straightedge to the nose bar fitting surface, measure clearances with a feeler gauge and consider the maximum value thereof to be the measured value ⁽⁶⁾ .		0.03 per 1000
		Vertical surface ⁽⁵⁾			0.03 per 1000
6	Cumulative errors of feed screws of left and right knife holders	Left	When a feed screw has been rotated, measure the distance of the knife holder to be moved by the rotation of the feed screw and an actually moved distance using the end standard with a given length and a test indicator, and consider the difference to be the measured value. Carry out this measurement, at least at 3 places of the center and both ends of the feed screw.		0.05 per 100
		Right			0.05 per 100

Table 7. (Continued)

Unit: mm

No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
7	Straightnesses of knife holder movement	In horizontal plane	Apply a test indicator mounted on the knife holder to a fixed straightedge ⁽⁷⁾ , allow the knife holder to travel, and consider the maximum difference of readings of the test indicator within the total travelling distance to be the measured value.		0.10 per 1000
		In vertical plane			0.05 per 1000

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Table 7. (Continued)

Unit: mm

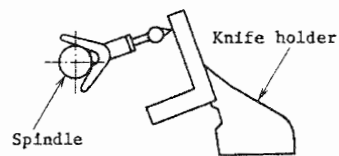
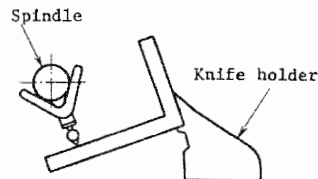
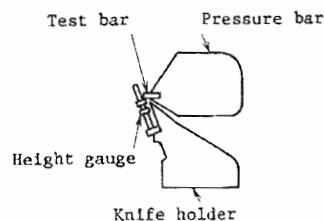
No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
8	Parallelisms of center line of left and right spindles with knife fitting surface of knife holder	Horizontal surface ⁽⁵⁾	Set a square at the position 200 mm from each end of the knife fitting surface of the knife holder, measure distance between each the square and the spindle using a test indicator, and consider the difference between two distances to be the measured value ⁽⁸⁾ .		0.15
		Vertical surface			0.15
9	Parallelism of knife holder with nose bar fitting surface (in horizontal plane) ⁽⁵⁾		Place a test bar stationally on the nose bar fitting surface, fix a height gauge closely to both horizontal and vertical surfaces of the knife fitting surface of the knife holder at the position 200 mm from its each end, measure the distances between the knife fitting surface of the knife holder and the test bar; and consider the difference between two distances to be the measured value.		0.03

Table 7. (Continued)

Unit: mm

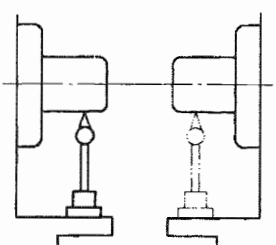
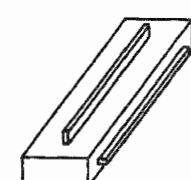
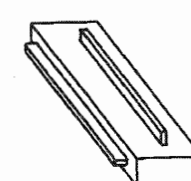
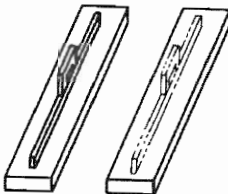
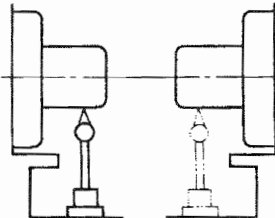
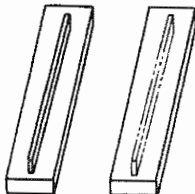
No.	Inspection item			Measuring method	Illustration of measuring method	Permissible deviation
10	Difference of distances between central line of left and right spindles and left and right fixed sliding surfaces ⁽⁹⁾ .			Place a test indicator on the left and right fixed sliding surfaces, and consider the difference of readings of the test indicator at the lower-most parts of the left and right spindle to be the measured value ⁽⁸⁾ .		0.15
11	Straightnesses of left and right fixed sliding surfaces ⁽⁹⁾	Left	Hori- zontal surface	Put straightedges to the horizontal and the vertical surfaces of the fixed sliding surface; measure clearances with a feeler gauge; and consider the maximum value of the clearances to be the measured value.		0.03 per 1000
			Ver- tical surface			0.03 per 1000
		Right	Hori- zontal surface	Put straightedges to the horizontal and the vertical surfaces of the fixed sliding surface; measure clearances with a feeler gauge; and consider the maximum value of the clearances to be the measured value.		0.03 per 1000
			Ver- tical surface			0.03 per 1000

Table 7. (Continued)

Unit: mm

No.	Inspection item		Measuring method	Illustration of measuring method	Permissible deviation
12	Parallelism of the left fixed sliding surface ⁽⁹⁾ with the right surface (in horizontal plane)		Place a precision level on a straightedge put on the left fixed sliding surface and then on the right one, and consider the maximum difference of the readings to be the measured value.		0.04/m
13	Difference of distances between central line of left and right spindles and left and right movable sliding surfaces ⁽¹⁰⁾		Place a test indicator on the left and right movable sliding surfaces, and consider the difference of readings at the lowermost parts of the left and right spindles to be the measured value.		0.15
14	Straightnesses of left and right movable sliding surfaces ⁽¹⁰⁾	Left	Apply a straightedge to the left and right movable sliding surfaces, measure clearances with a feeler gauge, and consider the maximum value thereof to be the measured value.		0.03 per 1000
		Right			0.03 per 1000

Notes (5) On those lathes which do not require the accuracy of this item, the inspection may be omitted.

(6) In the case where a straightedge is shorter than the knife fitting surface, measure by moving the position of the straightedge successively.

(7) Adjust the straightedge so that the readings of the test indicator at both end points of measurement may coincide with each other.

(8) In this measurement, take the position of the spindle with the least deflection as the reference.

(9) The fixed sliding surface refers to the sliding surface principally subjected to loads of the knife holder and pressure bar.

(10) The movable sliding surface refers to the sliding surface for adjustment of cutting angle.

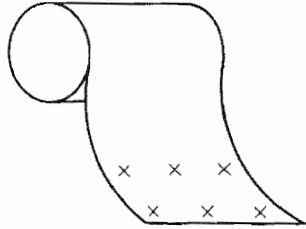
Remarks: On veneer lathes without relevant functions, omit the corresponding inspection items specified in Table 7.

7. Machining accuracy inspection methods

Machining accuracy inspection of veneer lathes shall be carried out in accordance with Table 8.

Table 8. Machining accuracy inspection

Unit: mm

No.	Inspection item	Measuring method	Illustration of measuring method	Permissible deviation
1	Accuracy of thickness	Measure the thickness of a veneer ⁽¹¹⁾ , after 10 rotations or more of continuous cutting has been processed, with a pair of micrometer calipers, per each rotation, at least at 3 positions of the center and both ends, and consider the minimum value, among the values of the maximum difference, in cutting direction on each position, which have been divided by each mean value, to be the measured value.		0.15
2	Finished state of cut surface	Examine the smoothness on both surfaces of the veneer by touch and ascertain its quality.	-	-

Note ⁽¹¹⁾ Omit the portions cut by several revolutions at the beginning and end of paring.

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